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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/821,226	03/28/2001	Michael A. Hergott	00-555 1496.00095	7163
24319	7590	12/18/2003	EXAMINER	
LSI LOGIC CORPORATION 1621 BARBER LANE MS: D-106 LEGAL MILPITAS, CA 95035			DOOLEY, MATTHEW C	
			ART UNIT	PAPER NUMBER
			2133	3
DATE MAILED: 12/18/2003				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/821,226

Applicant(s)

HERGOTT, MICHAEL A.

Examiner

Matthew C. Dooley

Art Unit

2133

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 is incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are on line 2 of claim 4, "wherein the cell exchanges said data signal between said pad circuit". The applicant has failed to set forth what circuitry the pad exchanges the data between. It is unclear whether the exchange occurs between the pad and the cell, the pad and the test circuit, the pad and the core, or some other circuitry configuration. As such, it is impossible to determine the scope of claim 4 and as such, it is rejected under 35 U.S.C. 112, second paragraph. Claim 5 further limits claim 4 and as such also is rejected under 35 U.S.C. 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claim 13 recites the limitation "step (C)" in line 4. There is insufficient antecedent basis for this limitation in the claim, because claim 13 depends on claim 1. For purposes of examination, claim 13 will be treated as depending from claim 9, however appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-3, 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over The Applicant's Admitted Prior Art (APA) Fig.1, in view of Jin, U.S. 6,125,464, and Levitt, U.S. 5,513,186.

As per claim 1:

The Applicant in the admitted prior art figure 1 discloses a circuit comprising a pad circuit configured to transfer a data signal in response to a pad control signal (112), a core logic configured to exchange the data signal with the pad circuit and present a control signal (106), a cell configured to transfer the data signal between the pad and the core logic and swap the data and test signal (110), and a test circuit configured to exchange the test data with the cell (108). However, not expressly disclosed in the APA is that the test circuit also stores a test control signal, and multiplexes the test control signal and the control signal to present the pad with a control signal. Jin teaches that it is well known to make use of storage registers for storage of test control information in scan

test architecture (Fig. 1a, 1c). It would have been obvious for one of ordinary skill in the art at the time of the invention to make use of the register circuitry disclosed by Jin in conjunction with the system of the APA because the storage circuitry allows for properly coordinated JTAG control signals to be applied thus allowing for tight control of the boundary scan testing process (Jin: Col.7: 23-43). However, the combination of Jin and the APA still fails to anticipate multiplexing the test control signal and the control signal to present the pad with a control signal. Levitt teaches to a boundary scan method that teaches to multiplexing the test control signal and the control signal to present the pad with a control signal (Fig.2). It would have been obvious for one of ordinary skill in the art at the time of the invention to make use of the test control multiplexing of Levitt in conjunction with the teachings of Jin and the APA because it allows for both external and internal control of the testing circuitry (Levitt: Col.2: 40-67).

As per claim 2:

Jin teaches to the exchange of the test data signal in the cell by presenting the data signal to the cell, swapping the data and test data signal by overwriting the data signal with the test signal, and outputting the signal which is then receivable by external pad circuitry (Jin: Fig.2, 4a, 4b; Col.3: 5-22; APA: Fig.1).

As per claim 3:

The systems of Jin and Levitt both teach to the test circuit being configured to clock the test data signal to cause the data signal received by the pad to change states (Levitt: Fig.3; Jin: Fig.4a, 4b).

As per claim 6:

The combination of APA Fig. 1, Jin, and Levitt shown in the rejection of claim 1 anticipates a multiplexer configured to multiplex a control signal and said test control signal (APA Fig. 1; Levitt: Fig. 2), as well as a controller configured to store the test control signal, present the test signal to the multiplexer and exchange the test data signal with the cell (APA Fig. 1; Levitt: Fig. 2; Jin: Fig. 1a, 2).

As per claim 7:

The Testing circuit of combination of APA Fig. 1, Jin, and Levitt shown in the rejection of claim 1 anticipates an input that receives the test control signal and user data register configured to store the test control signal and present the test control signal to the MUX (APA Fig. 1; Levitt: Fig. 2; Jin: Fig. 1a, 2).

As per claim 8:

Jin teaches to the exchange of the test data signal in the cell by presenting the data signal to the cell, swapping the data and test data signal by overwriting the data signal with the test signal, and outputting the signal which is then receivable by external pad circuitry (Jin: Fig. 2, 4a, 4b; Col. 3: 5-22; APA: Fig. 1). The systems of Jin and Levitt both teach to the test circuit being configured to clock the test data signal to cause the data signal received by the pad to change states (Levitt: Fig. 3; Jin: Fig. 4a, 4b).

As per claim 9:

Claim 9 is the corresponding method claim to apparatus claim 1 and as such can be rejected using analogous reasoning to that used above in the rejection of claim 1.

As per claim 10:

Claim 10 is the corresponding method claim to apparatus claim 2 and as such can be rejected using analogous reasoning to that used above in the rejection of claim 2.

As per claim 11:

The systems of Jin and Levitt both teach to methods for the test circuit being configured to clock the test data signal to cause the data signal received by the pad to change states (Levitt: Fig.3; Jin: Fig.4a, 4b), as well as overwriting the data signal in response to the clocking, and outputting the signal which is then receivable by external pad circuitry (Jin: Fig.2, 4a, 4b; Col.3: 5-22; APA: Fig.1).

As per claim 12:

The output pads of Jin, Levitt, and APA Fig.1 all are responsive for measuring transition responses of the pad circuitry as it changes from a first to a second presenting (Jin: 4a; Levitt: Fig.2; APA: Fig.1).

As per claim 13:

Jin teaches to receiving the test data signal in the cell, overwriting the test data signal with the data signal, and outputting the signal (Jin: Fig.2, 4a, 4b; Col.3: 5-22; APA: Fig.1).

As per claim 14:

Jin further teaches to teaches to a second receiving of the data signal, overwriting the test data signal with the data signal, and outputting the signal (Jin: Fig.2, 4a, 4b; Col.3: 5-22; APA: Fig.1).

As per claim 15:

The output pads of Jin, Levitt, and APA Fig.1 all are responsive for measuring transition responses of the pad circuitry as it changes from a first to a second presenting (Jin: 4a; Levitt: Fig.2; APA: Fig.1).

As per claim 16:

Claim 16 is a generalized form of claim 1. The combination of APA Fig.1, Jin, and Levitt have been shown above in the rejection of claim 1 above to teach to a first means for transferring a data signal in response to a first control signal, a means for exchanging the data signal with a first means for transferring, a means for presenting a second control signal, a second means for transferring said data signal between the first means for transferring and the exchanging means, means for swapping the data and test signal, means for exchanging the test data signal with the second means for transferring, means for storing a third control signal, and means for multiplexing said third control signal; and second control signal to present the first control signal (APA Fig.1; Levitt: Fig..2,3; Jin: Fig.1a, 2, 4a).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- | | | |
|----|----------------------|------------------------------|
| a. | Adusumilli | U.S. 6,418,545: Fig.2 |
| b. | El-Kik et al. | U.S. 6,427,216: Fig.3 |
| c. | Chung | U.S. 6,446,230: Fig.6a |
| d. | Nadeau-Dostie et al. | U.S. 6,536,008: Fig.2, Fig.8 |

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Dooley whose telephone number is (703) 306-5538.

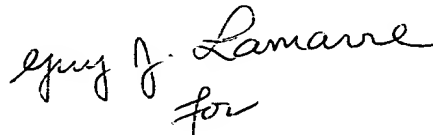
The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on (703) 305-9595. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Matt Dooley
Examiner AU 2133
12/12/03



Albert DeCady
Primary Examiner